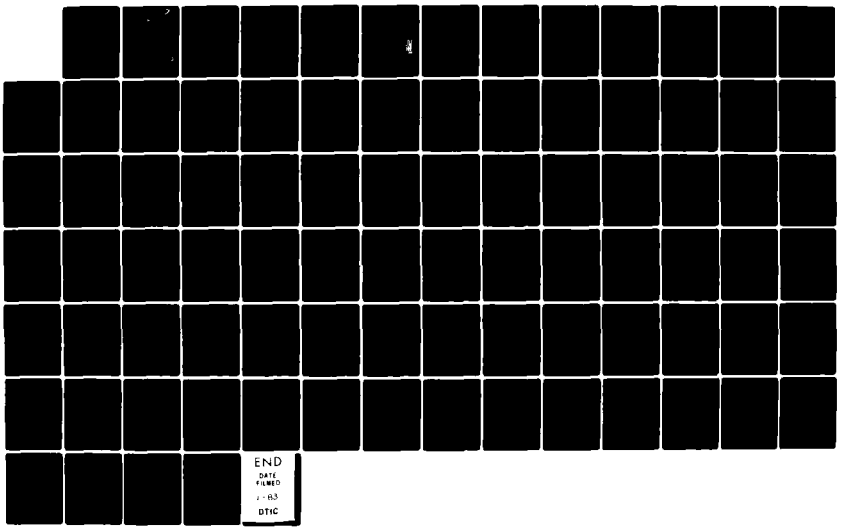
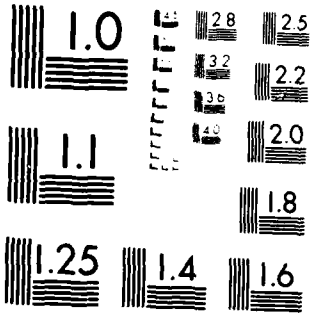
AD-A123 024 FURTHER VALIDATION OF STAHL AND HARRELL'S JOB CHOICE EXERCISE IN MEASURIN..(U) AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF SYST.. 1/1

UNCLASSIFIED S W BERRY ET AL. SEP 82 AFIT-LSSR-29-82 F/G 5/9 NL





DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (ATC)

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

FURTHER VALIDATION OF STAHL AND HARRELL'S JOB CHOICE EXERCISE IN MEASURING McCLELLAND'S TRICHOTOMY OF NEEDS

Scott W. Berry, Captain, USAF
Kenneth P. Judy, Captain, USAF

LSSR 29-82

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deleterious information are contained therein. Furthermore, the views expressed in the document are those of the author(s) and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the Air Training Command, the United States Air Force, or the Department of Defense.

AFIT Control Number LSSR 29-82

AFIT RESEARCH ASSESSMENT

The purpose of this questionnaire is to determine the potential for current and future applications of AFIT thesis research. Please return completed questionnaires to: AFIT/LSH, Wright-Patterson AFB, Ohio 45433.

1. Did this research contribute to a current Air Force project?

   a. Yes b. No

2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it?

   a. Yes b. No

3. The benefits of AFIT research can often be expressed by the equivalent value that your agency received by virtue of AFIT performing the research. Can you estimate what this research would have cost if it had been accomplished under contract or if it had been done in-house in terms of manpower and/or dollars?

   a. Man-years _____ $ _____ (Contract).

   b. Man-years _____ $ _____ (In-house).

4. Often it is not possible to attach equivalent dollar values to research, although the results of the research may, in fact, be important. Whether or not you were able to establish an equivalent value for this research (3 above), what is your estimate of its significance?

   a. Highly Significant b. Significant c. Slightly Significant d. Of No Significance

5. Comments:

_____ _____

Name and Grade Position

_____ _____

Organization Location

FOLD DOWN ON OUTSIDE - SEAL WITH TAPE

AFIT/ LSH
WRIGHT-PATTERSON AFB OH 45433

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 73236 WASHINGTON D.C.

POSTAGE WILL BE PAID BY ADDRESSEE

AFIT/ DAA
Wright-Patterson AFB OH 45433

FOLD IN

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER LSSR 29-82	2. GOVT ACCESSION NO. A123024	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) FURTHER VALIDATION OF STAHL AND HARRELL'S JOB CHOICE EXERCISE IN MEASURING McCLELLAND'S TRICHOTOMY OF NEEDS		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Scott W. Berry, Captain, USAF Kenneth P. Judy, Captain, USAF		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS School of Systems and Logistics Air Force Institute of Technology, WPAFB OH		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Department of Communication and Humanities AFIT/LSH, WPAFB OH 45433		12. REPORT DATE September 1982 13. NUMBER OF PAGES 79
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES
APPROVED FOR PUBLIC RELEASE: IAW AFR 190-17
2nd SEP 1982
LYNN E. WOLAVER
Dean for Research and Professional Development
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)
WRIGHT-PATTERSON AFB, OH 45433

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Job Choice Exercise (JCE)
McClelland
nPow, nAch, nAff
policy capturing

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
Thesis Chairman: William H. Hendrix, Lt Col, USAF

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

A study of 239 successful U.S. Air Force officers was conducted to test the reliability and validity of Stahl and Harrell's(1981) Job Choice Exercise (JCE) as a policy capturing tool. The JCE measured subjects' nPow, nAch, and nAff from a behavioral decision theory modeling approach. The single experimental condition consisted of three instrumentalities at two levels of measurement resulting in eight hypothetical jobs. This research controlled for several demographic variables by using regression analysis. Results generally supported Stahl and Harrell's findings. Differences in test results were attributed to differences in test groups.

LSSR 29-82

FURTHER VALIDATION OF STAHL AND HARRELL'S JOB CHOICE EXERCISE IN MEASURING McCLELLAND'S TRICHOTOMY OF NEEDS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

Scott W. Berry, BA
Captain, USAF

Kenneth P. Judy, BS, MS
Captain, USAF

September 1982

This thesis, written by

Captain Scott W. Berry

and

Captain Kenneth P. Judy

has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

DATE: 29 September 1982

William A. Hendrix
COMMITTEE CHAIRMAN

ACKNOWLEDGMENTS

We would like to thank Lieutenant Colonel "Herlie" Hendrix for his expert guidance and help in organizing and developing this study and to Dee Babiarz, our typist, for her steadfast and diligent efforts. But most of all, to our families for their patience and understanding during our absence on the long nights and weekends that we spent on this project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Many studies have examined people's need structures. One of the most popular theories is McClelland's trichotomy of needs (McClelland, 1951, 1955, 1971; McClelland, Atkinson, Clark, & Lowell, 1976). McClelland differentiated his need structure into three groups: need for achievement (nAch), need for power (nPow), and need for affiliation (nAff). According to McClelland et al. (1976), nAch is a motive which is active in people who normally take moderate risks, want immediate and concrete feedback on their performance, accomplish tasks because the tasks are intrinsically satisfying, and are preoccupied with a task until it is successfully completed. McClelland and Burnham (1979) characterized nPow, the second motive, as active in people who strive for power and feel a need to manipulate others. NPow has two emphases. In the first, socialized power, the individual orients his nPow towards the improvement of the organization. Self-aggrandizement is secondary. The other emphasis is more self-centered. People with this aspect of nPow are typically rude, sexually exploitative, and collect symbols of personal prestige such as fancy cars. The third motive, nAff, relates to the need for social contact. This need

emphasizes the importance of drawing near, cooperating, and remaining loyal to another person who is seen as similar to oneself and a friend (Murray, 1938). In addition to McClelland's own research on the theory (McClelland, 1969, 1971, 1972, 1975, 1979; McClelland & Winter, 1969; McClelland & Watson, 1973; McClelland & Burnham, 1975; McClelland, Constantian, Regalado, & Stone, 1978; McClelland & Jemmott, 1980), numerous other researchers have produced studies on the need theory. Most of the studies addressed nAch, although some have also researched nPow (Donley & Winter, 1970; Durand, 1975; Varga, 1975) and nAff (Friis & Knox, 1972; Rotondi, 1976).

The research on nAch emphasizes three distinct areas: the link between nAch and behavioral outcomes (McClelland & Watson, 1973; Durand, 1975; Varga, 1975; Rotondi, 1976; Singh, 1978), nAch as a moderating variable (Steers & Spencer, 1977; Stone, Mowday, & Porter, 1977; Morris & Snyder, 1979), and measuring nAch (Donley & Winter, 1970; Friis and Knox, 1972; Hines, 1973; Steers and Braunstein, 1976; Fineman, 1977; Helmreich, Beane, Lucker, & Spence, 1978; Harrell and Stahl, 1981; Stahl & Harrell, 1981). These groupings should not be considered definitive; they are based on the authors' research in this area, and have assisted in narrowing the scope of the present study. Also, the above references should not be viewed as exhaustive; however, they do provide a sampling of the research related

to McClelland's need theory. The abundance of material in this area indicates the scholarly interest and enthusiasm in further refining the trichotomy of needs theory.

One aspect of McClelland's need theory that has elicited much attention is its measurement instrument: the Thematic Apperception Test (TAT). The TAT is McClelland's original instrument for measuring nAch, nPow, and nAff. As a projective technique, the TAT permits an infinite number of responses that are bounded only by the subject's imagination. The subject "projects" his/her values and thoughts in response to a given stimulus (Anastasi, 1976). The TAT uses ambiguous pictures as stimuli to evoke the subject's written response (Harrell & Stahl, 1981). This ambiguity is a central aspect of projective techniques; the subject is normally unaware of the specific needs which he/she provides in the written response to the stimulus, nor is he/she aware of how the researcher will evaluate the response. Those who favor projective techniques point to their ability to reveal "covert, latent, or unconscious aspects of personality [Anastasi, 1976, p. 559]."

However, the TAT and projective techniques in general have not been without their critics. Fineman reviewed nAch measuring instruments (1977). He placed special emphasis on the TAT. Of 78 inter-test correlations, the overall median correlation was 0.12. When tested for internal consistency, the TAT produced a median correlation

of 0.32. Fineman further evaluated the TAT's stability over time. The examination produced a correlation of 0.22 over two weeks (1977).

In measuring TAT validity, Fineman found that of 59 reported relationships between the TAT, nAch, and performance, only 28 were statistically significant (1977). In conclusion, he stated that the empirical evidence cannot justify the use of projective techniques to measure nAch on conventional psychometric grounds (1977).

In contrast to Fineman's emphasis, Hines studied the feasibility of nonprojective techniques in measuring nAch. Using the Lynn Achievement Motivation Questionnaire, Hines sampled 80 entrepreneurs, 74 engineers, 68 accountants, and 93 middle managers (1973). He concluded that this nonprojective technique reflected the traditional pattern of McClelland's model which used projective techniques (1973).

Over approximately the last decade, behaviorally-based decision scales have gained popularity as alternatives to projective techniques. Slovic, Fischhoff, and Lichtenstein generated an extensive literature review on behavioral decision theory (1977). More relevant to the scope of this study were the studies conducted on need structure using behaviorally-based scales. Steers and Braunstein developed the Manifest Needs Questionnaire (1976) to measure Murray's theory (Murray, 1938) of motivation, as refined by McClelland and Atkinson (Atkinson, 1958). Steers and Braunstein's

research was prompted by a need for "unencumbering yet reliable research instruments designed to measure such needs [1976, p. 251]." They stated that while current instruments ignore the absence of necessary need stimuli in the subject's environment, a behaviorally-based scale measures only those attributes related to behavior. Using a sample of 96 management students, one use of the Manifest Needs Questionnaire (MNQ) resulted in highly acceptable degrees of association between nAch and need for dominance, and moderately acceptable degrees of association between nAff and need for autonomy (1976). The range for test-retest reliability was 0.72—0.86 (1976). In a follow-on study, Steers and Spencer used the MNQ to measure achievement motivation in job design (1977). The MNQ was administered to 115 managers in major manufacturing firms. Results on the influence of job design on job attitudes within the context of organizational commitment were consistent with results obtained by Steers and Braunstein (1976).

Two more recent studies have addressed the use of behavioral decision theory in conjunction with McClelland's trichotomy of needs. Stahl and Harrell tested Vroom's model (Vroom, 1964) and produced little empirical support (Stahl & Harrell, 1981). Their research was prompted by the conclusions of DeLeo and Pritchard that

> The procedure of testing expectancy-valence models with survey methodology seems clearly inappropriate given the quality of the measuring instruments currently available [1974, p. 148],

and the suggestion of Mitchell and Beach (1977) and Zedeck (1977) that expectancy theory could best be measured by behavior-decision theory approaches in lieu of encountering the same problems that had surfaced in other instruments.

Harrell and Stahl performed additional research on McClelland's trichotomy of needs using a behaviorally-based scale (1981). The instrument, a decision-making exercise in questionnaire format, asked each subject to determine the probability that he/she would seek a number of hypothetical jobs (1981). Subjects were acquired from three population groups: 347 junior Air Force (AF) officers (156 questionnaires returned), 475 scientists and engineers employed at an AF laboratory (173 returned), and 174 high level AF officers enrolled at an AF professional military education (PME) school (95 returned). The probabilities were provided by the researchers and ranged from 0% to 100% in increments of 10%. The results for each subject were modeled using multiple regression (1981). Regression analysis determined how each subject weighted the various needs (1981).

Final results indicated that samples one and two had significantly higher nAch than nPow or nAff. Sample three had significantly lower nAch and higher nPow scores than the other two samples. While recognizing that this was only a preliminary study, the authors suggested that behavioral decision theory had empirical merit in measuring McClelland's trichotomy of needs. Several of the advantages which

surfaced during this experiment closely paralleled those mentioned by Steers and Braunstein (1976): time to complete the exercise was minimal (15—20 minutes), and no conscious evaluation of the tested needs was required of the subjects. This methodology of "capturing" the subject's decision-making through multiple regression will be further explored at a later point in the present study.

Another factor which could influence one's needs levels is that of birth order. A review of the literature indicated a strong correlation between birth order and nAch. A study of approximately 2400 medical school applicants revealed a significantly higher number of firstborns than expected. The relative advantage of the firstborn and disadvantage of the last-born regarding medical school admission was found to increase with family size (Layman & Saueracker, 1978). Neld, Ward and Edgar (1977) reported similar findings when they compared 15 to 18 year old delinquent and honor-roll boys. Middle-borns were over-represented among the delinquents while a significantly large number of firstborns were found among the honor-roll students.

Given that firstborns are higher in nAch than non-firstborns, the authors decided to investigate the possibility of a relationship between firstborns and nPow. Because of the firstborn's unique position among siblings, this study hypothesized that firstborns would be regarded

as a power figure by younger siblings. Carrying the logic one step further, firstborns should be higher in nPow than non-firstborns.

Problem Statement

To this point, this study has provided a cursory background of McClelland's trichotomy of needs, the original instrument to measure the need structure and some of its limitations, recent alternatives to projective techniques in the area of behaviorally-based decision scales, and selected articles which described the above concepts. With that as a basis, this study attempted to determine the basic need structure of AF officers enrolled in AF resident PME schools. This study used the need structure of McClelland as a foundation for evaluation. Having reviewed the literature on measurement of the need structure, the authors proposed to give insight into the use of behaviorally-based scales. In particular, we attempted to further validate the policy capturing technique and multiple regression methodology as implemented in the Job Choice Exercise (Harrell & Stahl, 1981). Chapter 2 provides a literature review on policy capturing and its relationship to the Job Choice Exercise.

CHAPTER 2

LITERATURE REVIEW

Policy capturing essentially quantified the process used by a decision maker through which informational attributes (cues) were weighted and combined resulting in a decision. Smith (1972) defined policy capturing as ". . . the building of a model which, given the same information the individual has, will accurately reproduce his judgments based on that information." Gooch (1972) provided a more detailed definition of policy capturing by describing it as ". . . identification and quantification of the attributes that are pertinent to a decision policy for the evaluation of these attributes." Both researchers addressed the "actual combination of the question and the desire to produce a mathematical (or heuristic) model of the judgment making process" (Jones, Mannis, Martin, Summers, & Wagner, 1976, p. 7).

Hoffman (1960) was generally credited with developing policy capturing as a judgment-modeling approach, basing his model formulation on the Brunswik lens model (Brunswik, 1952). More recently, Zedeck (1977) and Mitchell and Beach (1977) suggested that the behavioral decision theory modeling approach was the best method of investigating human motivation. This research was widely used to study human decision-making and was conceptually linked to the Brunswik lens

model. The most significant advantage of this approach was that it allowed hypotheses to be examined based on the actual decision-making behavior exhibited by subjects rather than on self-reports of their own behavior (Slovic & Lichtenstein, 1971, p. 655). An explanation of the Brunswik lens model is essential to understanding policy capturing.

The Brunswik Lens Model

Brunswik's model was based on the assumption that the decision environment provided information that was ambiguous and uncertain. The decision-maker interpreted this information in a way that proved advantageous in dealing with that environment (Beach, 1967; Slovic & Lichtenstein, 1971). Brunswik's lens model (Figure 1) represented the manner in which human judgment and the environment interact.

The left side of the lens model depicted the environment or state-of-the-world. The particular state of interest was denoted Y_e. This state provided a set of cues (attributes) X_1 through X_n that reflected its qualities. The right side of the figure represented the subject, who combined the cues to reach a judgment or decision Y_s in response to the environment. The cues served as an interface between the subject and the environment and were the means by which an individual collected information, similar to a lens collecting and focusing light.

Typically, the cues and the corresponding environmental state did not form a perfect correlation. This was

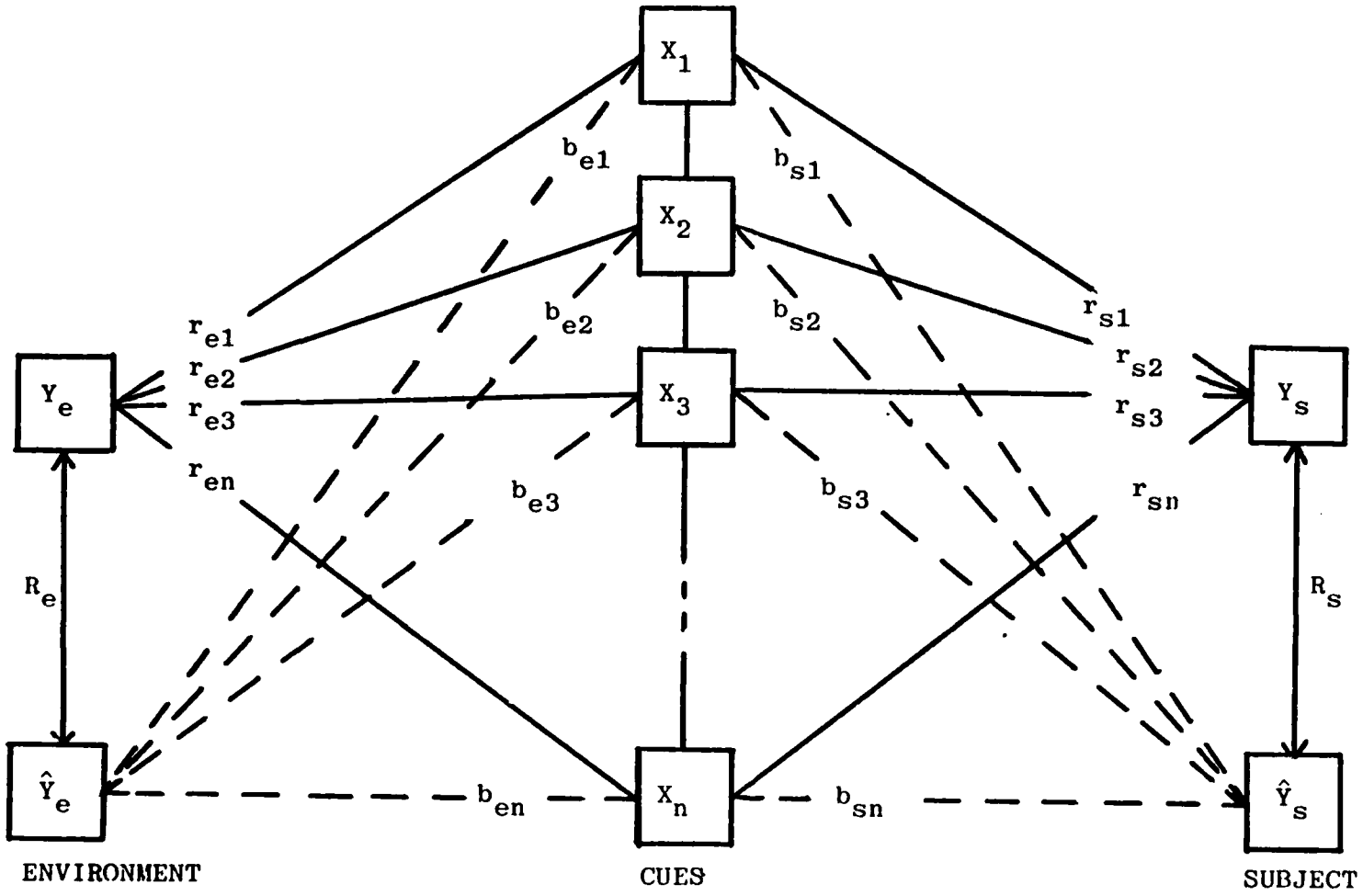


Figure 1. Brunswik's Lens Model (Beach, 1967)

because the information provided by the cues was often ambiguous. The solid lines connecting Y_e and the cues in Figure 1 represented the various cue validities, which were expressed as correlation coefficients r_{e1}, r_{e2}, . . ., r_{en}. These coefficients measured the relative accuracy with which each cue described the environment. The solid lines connecting the cues and Y_s represented cue utilization, or how much the cues contributed to the decision. These were measured by correlation coefficients r_{s1}, r_{s2}, . . ., r_{sn}. Both the validity and utilization coefficients were derived from a series of environment-decision relationships, not from a single case.

Suppose another subject was given access to the validity and utilization coefficients describing the previous behavior of the environment and the first subject. How could the environmental state (Y_e) and the subject's response (Y_s) be predicted, given a new set of cues? One method involved using the coefficients to derive multiple regression equations for these quantities:

$$Y_e = b_{e1}X_1 + b_{e2}X_2 + \ldots + b_{en}X_n \qquad (1)$$

$$Y_s = b_{s1}X_1 + b_{s2}X_2 + \ldots + b_{sn}X_n \qquad (2)$$

In Equation 1, the b_{ek} coefficients (k = 1 to n) represented the optimal weights that minimized the unexplained variance in Y_e by the estimator $\hat{Y}_e$. A parallel interpretation applied to Equation 2, for which the multiple correlation coefficient was R_s.

The equations provided a means of estimating the state of the environment and the response of an individual to that particular state. Policy capturing concerned itself only with the right side of the lens, the part described by Equation 2. It employed multiple regression analysis to calculate (capture) the cue weightings (policies) that most closely approximated the known Y_s values.

Aside from the cue weights, the regression process provided other quantities useful in interpreting judgment policies. One of these was the multiple squared correlation coefficient $(R_s)^2$, or simply R^2. This indicated the percent variance explained by the regression model. The higher the R^2, the more accurately the model matched predicted and observed behavior.

Another valuable quantity was the standardized regression coefficient, also known as a beta weight (Madden, 1981, p. 342). The beta weights corresponded to the unstandardized b_{sk} coefficients, except that the cue values were rescaled so that each cue had a mean of zero and a variance of one. This made the beta weights more convenient to use. The equation was simplified because the regression constant term b_{s0} was always zero. It also became simpler to compare relative contributions of cues to the model since their standard deviations were equal. When variables were measured on different scales or conform to different distributions, this could not be done.

Hoffman (1960) developed a third useful process using the beta weights. By assigning relative weights, the proportion of explainable variation accounted for by each cue could be described. The mathematical relationship is:

$$W_i = B_i^2/R^2 \qquad (3)$$

where

W_i = the relative weight of the i^{th} cue

B_i = the beta weight for the i^{th} cue

R^2 = the total variance explained by the model.

This equation assumed that the cues are orthogonal, or uncorrelated among themselves. This stipulation was tested during the course of our research.

Capturing Behavioral Decision Theory

Behavioral decision theory has been widely used to study human decision-making and considered an effective policy capturing approach. Extensive literature reviews on the subject were found in Slovic and Lichtenstein (1971), Kaplan and Schwartz (1975), Slovic, Fischoff, and Lichtenstein (1977), and Hammond, Rohrbaugh, Mumpower, and Adelman (1977). Most of the research focused upon constructing mathematical models of the decision-making behavior exhibited by various categories of experts (e.g., Christal, 1968; Goldberg, 1968; Slovic, 1969; Ashton, 1974; Zedeck & Kafry, 1977; Dawes, 1979). In almost all instances, a linear model adequately captured the relationship between an individual's decisions and the cues used to arrive at those decisions

(Hoffman, 1960; Beach, 1967; Darlington, 1968; Dawes & Corrigan, 1974; Keren & Newman, 1978; Laughlin, 1978; Dawes, 1979).

Some of these models reflected actual decisions individuals have reached in the course of their work while others used hypothetical decision-making exercises. Brown (1972) concluded that the models he constructed of subject's decision behavior using data from an exercise did not differ substantially from the models he constructed with data from actual decision situations.

Stahl and Harrell (1981) have reported significant results in testing a behavioral decision theory approach to testing Vroom's expectancy theory and McClelland's trichotomy of needs by use of a Job Choice Exercise that they developed.

Stahl and Harrell's Job Choice Exercise (JCE)

The JCE has been successfully utilized in testing Vroom's expectancy theory (Vroom, 1964). While most previous expectancy theory studies involved self reports of instrumentalities, valences, and expectancies which were provided by the subjects, Stahl and Harrell provided information and asked the subjects to arrive at a series of decisions based on that information (Stahl & Harrell, 1981). As a result, the manner in which the provided information was utilized, i.e., multiplicatively or additively, was modeled. Second, a model was derived on how each individual

processed the information in reaching these decisions. This complied with Vroom's description of expectancy theory as an individual choice model (1964, p. 22). Therefore, Stahl and Harrell used the Job Choice Exercise to study the research question: "Do individuals multiply first-level valence by expectancy when deciding on effort levels as hypothesized by Vroom's (1964) multiplicative force model?" (Stahl & Harrell, 1981, p. 306).

Stahl and Harrell conducted four experiments which tested Vroom's model. In the first two experiments, 68 graduate students' decisions were captured using a decision-making exercise involving 24 hypothetical courses. Each course was expressed in terms of three instrumentalities and one expectancy (0, .4 or .8 in the first experiment and 0, .2 or .6 in the second). The last two experiments used two different decision-making exercises to capture the decisions of 89 high school and undergraduate students concerning the effort exerted to get 24 hypothetical jobs. The third experiment described each job in terms of three instrumentalities and one expectancy (.05, .50 or .95). The fourth experiment described each job in terms of four instrumentalities and one expectancy (0, .3 or .6). Factorial designs were used in all experiments to increase the level of experimental control and to provide enough decisions for each subject to allow individual within-person analysis of the data. A majority of the subjects (63%)

supported an additive model while the remaining 37% supported Vroom's multiplicative force model. Stahl and Harrell hypothesized that the two different models were attributable to individual differences in cognitive processing of probabilistic information. The research demonstrated the theoretical, analytic and psychometric advantages of the behavior decision theory modeling approach to testing expectancy theory.

JCE Test of McClelland's Trichotomy of Needs

Stahl and Harrell proposed that McClelland's trichotomy of needs could be more accurately measured from a behavioral decision theory modeling approach by examining the decision-making behavior exhibited by individuals to determine how they weighted their nAff, nPow, and nAch in arriving at job choice decisions (Harrell & Stahl, 1981).

Three population groups were involved in the initial validation effort—161 scientists and engineers, 149 AF officer graduate students, and 94 management executives. Eight hypotheses derived from McClelland's writings concerning intergroup and intragroup relationships and concurrent validity issues were supported by the empirical data (Harrell & Stahl, 1981).

The Job Choice decision-making exercise was designed to eliminate the influence of factors other than nAch, nPow, and nAff from an individual's job choice decisions. The exercise instructions emphasized that the hypothetical jobs

differed only in regard to the information presented about the three decision cues. The hypotheses examined the rationale that the weight an individual placed on each of the three cues in arriving at a decision reflected the strength of the person's nAff, nPow, and nAch. Since three different information cues were used with three possible frequencies of occurrence, each subject was required to reach 27 job choice decisions ($3^3 = 27$, a full factorial design). Interaction terms were not statistically significant and consequently discarded. The resulting model was

$$\text{job choice} = B_1(\text{Aff}) + B_2(\text{Pow}) + B_3(\text{Ach})$$

The factorial design resulted in three independent, uncorrelated variables. The average individual R^2 obtained from the regression analysis was .69 which suggested that the subjects were reasonably consistent decision makers. Only about 5% of the total sample was discarded as being statistically insignificant. While the results of the initial research were encouraging, Stahl and Harrell cautioned that the behavioral decision theory approach for measuring McClelland's trichotomy of needs should be considered a proposed new methodology at this time. Further validation was required and the reliability of the JCE instrument had not been established (Harrell & Stahl, 1981). Consequently, the consistency of the JCE measurements of McClelland's needs was still in question.

Conclusion

Given that the measurement of behavioral constructs was still, at best, approximate, the policy capturing technique developed by Stahl and Harrell offered a promise of improved reliability and validity when compared to other more traditional measuring techniques. Aside from reliability and validity, the new decision-making exercise possessed other positive characteristics. It was easy to understand and completed quickly. The subjects in Stahl and Harrell's study were given only written instructions and completed this self-administered test in 15—20 minutes. The tests did not require self reports on the importance of the cues. Consequently, the issue of whether the cues were conscious or unconscious was avoided. (Fineman, 1977; McClelland, 1975, p. 6) All three of McClelland's hypothesized needs were measured simultaneously using multiple regression analysis. Finally, the job-choice scenario used in the JCE was a realistic situation with which most subjects had contended.

Hypotheses

The following hypotheses associated with this research were derived from the cited McClelland references and consultation with Dr. Michael J. Stahl. Hi/Hi scorers are those subjects which scored above the grand mean in both nPow (.494) and nAch (.506). Lo/Lo subjects scored below the grand mean in both nPow and nAch.

1. There is a positive correlation between nPow and the number of years as a supervisor.

2. There is a positive correlation between nPow and the number of years in the US Air Force.

3. Students in Air War College are the highest in nPow of all groups.

4. Supervisors are higher in nPow than nonsupervisors.

5. Squadron Officer School students score higher in nAff than the other two groups.

6. The proportion of Hi/Hi's in Air Command and Staff School students is higher than students in the other two schools.

7. The proportion of Lo/Lo's in Squadron Officers School is greater than students in the other two schools.

8. Firstborn individuals are higher in nPow than nonfirstborns.

CHAPTER 3

METHODOLOGY

A total of 340 Job Choice Exercise instruments were distributed to randomly selected Air University students. Of the 120 instruments distributed to Squadron Officers School (SOS), 106 were returned, one of which was rejected due to a low R^2. Air Command Staff College (ACSC) received 120 instruments and returned 91, one of which was rejected for a low R^2 value and three were rejected because they displayed low variance. Air War College (AWC) returned 47 of the 100 instruments it received, none of which were rejected. The total sample size was 239 usable instruments. Since the data were collected at one point in time per subject, there was one experimental condition.

Subjects

All subjects were successful military officers (primarily US Air Force) by virtue of their selection to attend PME schools in residence. AWC, the most selective school, was comprised of executive grade officers (Colonel and Colonel selectees) being groomed for future top leadership positions. ACSC represented promising middle level managers (Major and Major selectees), while SOS, the least selective school, was made up of junior grade officers (First Lieutenant

and Captain) considered lower level managers. Subjects completed the JCE in their spare time after reviewing written instructions contained in the JCE. The randomly selected subjects from each school were offered feedback on their captured decision-making characteristics; otherwise they could remain anonymous. All data matching subjects to responses were held in strict confidence.

Information solicited as an amendment to the JCE included grade level (O-1 through O-7) which corresponded to the ranks of second lieutenant through brigadier general respectively. Actual ranks ranged from first lieutenant through colonel. The remaining demographics are self-explanatory and depicted in Table I.

Rank, age, sex and educational level were collected for descriptive statistics and control purposes. A copy of the demographics questionnaire that accompanied the JCE is located at Appendix A.

Missing Values

Within the sample, one SOS subject omitted birth order information. Information on length of military service was omitted by three SOS subjects and three ACSC subjects. Age was omitted by one SOS, one AWC and three ACSC subjects. One SOS subject failed to specify a sex category. All cases that had missing values were omitted from analysis.

TABLE I

DEMOGRAPHIC DATA

Category	SOS	ACSC	AWC	TOT
Rank				
0-2	37	0	0	37
0-3	68	3	0	71
0-4	0	84	0	84
0-5	0	0	31	31
0-6	0	0	16	16
Age ($\bar{X}$)/s	30.02/3.16	36.04/2.1	40.8 /2.1	34.3 /4.95
Race				
Asian	1	0	0	1
Black	5	1	3	9
Hispanic	1	1	1	3
White	98	85	43	226
Sex				
Male	93	84	47	224
Female	11	3	0	14
Educational Level				
Some College	0	1	0	1
Bachelor's Degree	30	8	2	40
Some Graduate Work	30	11	4	45
Master's Degree	43	64	41	148
Doctoral Degree	2	3	0	5
Years of Service ($\bar{X}$)/s	7.61/3.75	14.27/2.3	18.96/1.65	12.3 /5.35
Supervisors	84	83	47	214
Yrs as Supervisor ($\bar{X}$)/s	3.85/2.85	7.92/4.12	11.23/5.16	7.10/4.87
Birth Order				
Only Child	8	9	3	20
1st born of 2 or more children	38	40	22	100
2nd born	34	26	15	75
3rd born	13	6	5	24
4th born	9	5	1	15
5th born	2	1	0	3
6th or later born	0	0	1	1

Treatment of participants was in accordance with the ethical standards of the American Psychological Association.

Instrument

The Job Choice Exercise (Copyright 1981 by M. J. Stahl and A. M. Harrell and included in Appendix A) consisted of 30 hypothetical jobs. Each subject was asked to make two decisions regarding each job. The first decision concerned the attractiveness of the job and the second decision (not analyzed in this study) concerned the exertion of effort to seek or avoid the job. These two decisions regarding job preference and job choice were detailed by Vroom (1964, Chap. 4).

Subjects were asked to assume that they were seeking a job and that they were qualified for all jobs listed in the JCE. All jobs were described as being exactly alike with respect to factors such as pay and benefits, and differed only with respect to the three instrumentalities.

The instrumentalities in the JCE which were used to describe the hypothetical jobs were based on McClelland's "Need for Achievement," "Need for Power," and "Need for Affiliation" (McClelland, 1975). Each of the three instrumentalities represented a likelihood between the hypothetical job and the second level outcome. The three second level outcomes were: establishing and maintaining friendly relationships with others (nAff); influencing the activities or thoughts of a number of individuals (nPow); and,

accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance (nAch). Two levels of instrumentalities were offered in the instrument: very high (95%) and very low (5%). Since only decision A was evaluated, three instrumentalities at two levels of measurement yielded eight hypothetical jobs (2x2x2). Each of the eight hypothetical jobs appeared three times within the JCE (in questions 7 through 30; questions 1 through 6 were administered for "warm-up" purposes and eliminated from analysis) resulting in 24 responses. Since 239 subjects made one decision for each job, 5736 decision responses were analyzed in this experiment.

Procedure

To determine the demographic mix of the sample, the CONDESCRIPTIVE subprogram of the Statistical Package of the Social Sciences (SPSS) was used, revealing statistical and count data on all relevant demographic categories.

The raw JCE and demographic responses were transferred to computer cards and sent to M. J. Stahl at Clemson University. Dr. Stahl computed beta weights for each of the three instrumentalities (nPow, nAch, and nAff) for each of the 239 subjects. In addition, Dr. Stahl derived each subject's internal correlation (R squared) to test for consistency and determined the variance of each subject's responses.

Using the above data, a regression subprogram was initially run for the basic model using SPSS (Appendix B). Y_1, Y_2, and Y_3 were the three dependent variables representing nPow, nAff, and nAch, respectively. These dependent variables were regressed against predictor variables X_1 through X_8 (see Table II for a full explanation of all variables).

TABLE II

DEFINITIONS OF REGRESSION VARIABLES

DEPENDENT VARIABLES

Y_1 = Need for Power (nPow)
Y_2 = Need for Affiliation (nAff)
Y_3 = Need for Achievement (nAch)

PREDICTOR VARIABLES

X_1 = Air War College
X_2 = Air Command and Staff College
X_3 = one if Male; zero, otherwise
X_4 = Educational Level
X_5 = one if Firstborn of two or more children; zero, otherwise
X_6 = Number of years of Military Service
X_7 = one if Supervisor; zero, otherwise
X_8 = Number of years experience as a supervisor

In addition, μ_1, μ_2, μ_3 were used in the analysis formulations below to represent the mean population weights of the specific need being tested (nPow, nAch, or nAff) for AWC (μ_1), ACSC (μ_2), and SOS (μ_3).

In testing the hypotheses proposed at the end of Chapter 2, the full model was formulated controlling for all

predictor variables and compared to various restricted models which grouped the hypothesized variables. Null and alternative hypotheses were stated along with the test statistic and critical region. A significance level of $\alpha = .05$ was used for all tests. The following is a synopsis of how the individual hypotheses were tested; each of the analyses corresponds to its respective hypothesis.

Analysis 1:

H_o: There is no positive correlation between Y_1 and X_8

H_a: There is a positive correlation between Y_1 and X_8

Test Statistic: Table of significant correlation coefficients at $\alpha = .05$ and $N = 239$.

A correlation matrix was provided by subprogram REGRESSION for Y_1 against X_8.

Analysis 2:

H_o: There is no positive correlation between Y_1 and X_6

H_a: There is a positive correlation between Y_1 and X_6

Test Statistic: Same as above.

A correlation matrix provided a correlation coefficient for Y_1 against X_6.

Analysis 3:

Model: $Y_1 = X_1$ through X_8 (Full Model)

$Y_1 = X_3$ through X_8 (Restricted Model)

H_o: nPow is the same for all three schools

H_a: At least one differs

which is equivalent to

H_o: $\mu_1 = \mu_2 = \mu_3$

H_a: At least one μ_i differs

Test Statistic:

$$F = \frac{(R_2^2 - R_1^2)/m}{(1 - R_2^2)/(N - k - 1)}$$

where

$R_2^2 = R^2$ for full model

$R_1^2 = R^2$ for restricted model

N = sample size = 239

k = number of betas in full model

m = difference in number of betas between full and restricted models.

Reject H_o if $F > F_{\alpha, V_1, V_2}$

Where $V_1 = df_1$ and $V_2 = df_2$

Analysis 3B:

To compare the regression methodology that controlled for other variables such as school, years service, supervisory status, and birth order, we performed a ONEWAY ANOVA and a Student-Newman-Keuls (SNK) procedure on nPow

for each school. This analysis attempted to determine if there was a significant difference in nPow among the three schools (without controlling for any factors), and if so, which school had the highest nPow.

H_o: nPow for the three schools is the same

H_a: AWC has the highest nPow

which is equivalent to

H_o: $\mu_{(i)} = \mu_{(j)}$

H_a: $\mu_{(i)} > \mu_{(j)}$

Test Statistic: F statistic and significance levels furnished by SPSS subprogram ONEWAY for ANOVA and SNK.

Analysis 4:

Model: $Y_1 = X_1$ through X_8 (Full Model)

$Y_1 = X_1$ through X_6, X_8 (Restricted Model)

H_o: nPow for supervisors and nonsupervisors is the same

H_a: nPow for supervisors and nonsupervisors is not the same

Test Statistic: Same as for Analysis 3.

Rejection Region: Same as for Analysis 3.

Analysis 5:

Model: $Y_2 = X_1$ through X_8 (Full Model)

$Y_2 = X_3$ through X_8 (Restricted Model)

H_o: nAff for all three schools is the same

H_a: At least one differs

which is equivalent to

H_o: $\mu_1 = \mu_2 = \mu_3$

H_a: At least one μ_i differs

Test Statistic: Same as for Analysis 3.

Rejection Region: Same as for Analysis 3.

Analysis 5B:

This analysis paralleled Analysis 3B for nAff among the three schools.

H_o: nAff for the three schools is the same

H_a: SOS has the highest nAff

which is equivalent to

H_o: $\mu_{(i)} = \mu_{(j)}$

H_a: $\mu_{(i)} > \mu_{(j)}$

Test Statistic: F statistic and significance levels furnished by SPSS subprogram ONEWAY for ANOVA and SNK.

Analysis 6:

H_o: Proportion of Hi/Hi's in ACSC ≤ proportion of Hi/Hi's for AWC and SOS

H_a: Proportion of Hi/Hi's in ACSC > proportion of Hi/Hi's for AWC and SOS

Test Statistic: SPSS subprogram CROSSTABS.

Statistics are descriptive only.

Analysis 7

H_o: Proportion of Lo/Lo's in SOS ≤ proportion of Lo/Lo's in AWC and ACSC

H_a: Proportion of Lo/Lo's in SOS > proportion of Lo/Lo's in AWC and ACSC

Test Statistics: Same as for Analysis 6.

Analysis 8:

Models: $Y_1 = X_1$ through X_8 (Full Model)

$Y_1 = X_1$ through X_4, X_6 through X_8 (Restricted Model)

H_o: nPow for firstborns and non-firstborns is the same

H_a: nPow for firstborns and non-firstborns is not the same

Test Statistics: Same as for Analysis 3.

NOTE: A firstborn is the firstborn of two or more children.

The final results of the above tests are outlined in Chapter 4.

CHAPTER 4

RESULTS

Analysis of the statistical tests for the eight hypotheses produced mixed results. In general, the results tended to support those hypotheses subjected only to descriptive analysis. However, those hypotheses which were tested using inferential statistics generally lacked sufficient support to reject the null hypotheses.

For Analyses 1 and 2, the SPSS subprogram REGRESSION calculated positive correlation coefficients of 0.22602 and 0.23123, respectively. Both of these were significant at the .05 level with the degrees of freedom = N-2 = 237. The critical region for N = 200 was 0.138.

Analyses 3 and 5 tested the need strengths between the three schools. AWC (n=47), ACSC (n=87), and SOS (n=105). Using regression analysis, none of these were significant at the .05 level. For hypothesis 3, the observed F value with $df_1 = 2$, $df_2 = 230$ was 1.211 with a critical F value of 3.04 ($df_1 = 2$, $df_2 = 230$). However, AWC did have the highest positive correlation coefficient for nPow (.19) and also the largest mean beta weight (0.58). A summary of the mean beta weights for each school and dependent variable are contained in Table III. For hypothesis 5, the observed

F value was 0.003 with $df_1 = 2$, $df_2 = 230$ and a critical F value of 3.04 with $df_1 = 2$, $df_2 = 200$. SOS had the lowest mean beta weight for nAff (0.365). See Table III for a summary of these results.

TABLE III

BETA WEIGHTS

	nPow		nAch		nAff	
	Mean	SD	Mean	SD	Mean	SD
AWC	0.580	0.188	0.483	0.232	0.395	0.207
ACSC	0.524	0.206	0.489	0.256	0.382	0.255
SOS	0.431	0.234	0.531	0.294	0.365	0.293
Combined	0.494	0.223	0.506	0.269	0.377	0.263

The results from the ANOVA and SNK procedure were slightly different. For Analysis 3, the ANOVA procedure produced an F statistic of 9.013 at a significance level of 0.0002. Therefore, at least one of the nPows differed for the three schools using the ANOVA procedure. The SNK procedure detected further differences. The SOS mean for nPow was significantly lower than ACSC or AWC at the .05 significance level. However, no significant differences were noted between ACSC and AWC. The ANOVA results for Analysis 5 were consistent with the regression analysis. These tests calculated an F value of 0.237 at a significance level of 0.7894. The null hypothesis was not rejected. The SNK

procedure failed to differentiate between the three school means for nAff.

The results of hypothesis 4 were very similar to the regression results for hypotheses 3 and 5. Analysis failed to reject the null hypothesis at the .05 level in either case. For hypothesis 4, the observed F was 1.217 with $df_1 = 1$, $df_2 = 230$ and a critical F value of 3.89 with $df_1 = 1$, $df_2 = 200$.

For hypothesis 8, the observed F was 0.025 with $df_1 = 1$, $df_2 = 230$ and a critical F value of 3.89 with $df_1 = 1$, $df_2 = 230$.

Hypotheses 6 and 7 were tested only on a descriptive basis. As mentioned earlier a Hi/Hi or Lo/Lo scorer was determined based upon a subject's scores when compared against the grand means for both nPow and nAch. In testing hypothesis 6, ACSC did have the highest proportion of Hi/Hi's (29.9%). However, AWC was very close at 29.8%. SOS had 16.2% Hi/Hi's.

Hypothesis 7 better differentiated between the three schools. SOS did have the greatest proportion of Lo/Lo's (15.2%), followed by ACSC (13.8%) and AWC (6.4%). See Table IV for a summary of these results.

TABLE IV

PROPORTION OF HI/HI'S AND LO/LO'S

	Hi/Hi	Lo/Lo
AWC	29.8%	6.4%
ACSC	29.9%	13.8%
SOS	16.2%	15.2%

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This research attempted to further validate Harrell and Stahl's (1981) approach for measuring McClelland's trichotomy of needs. This new approach was derived from behavioral decision theory and involved capturing individuals' decision-making behavior to determine how they weighted their nAff, nPow, and nAch in arriving at job choice decisions. The Job Choice Exercise was used to gather the empirical data, which were collected from successful US Air Force officers attending leadership schools (SOS, ACSC, and AWC) at Air University. These schools represented junior-level, mid-level and executive-level managers, respectively. Multiple regression, ANOVA, and the SNK procedure were used to determine how each subject weighted the three needs in arriving at job-choice decisions.

Conclusion of Hypotheses

While the data did not statistically support hypotheses 3, 4, 5 and 8, the general trends supported Harrell and Stahl's findings (1981). One possible reason for the difference in results was that this study controlled for many demographic variables whereas previous studies used a basic model ($Y_i = B_1(Aff) + B_2(Pow) + B_3(Ach)$).

Some of these controlling variables may have lacked the predictive power originally envisioned or may have covaried another predictor variable. For example, years of military service (X_6) would naturally correlate with the school variables because X_6 was relatively distinct for each school. The AWC years of military service, r, with X_6 was .61. Other correlations, however, weren't nearly as high, restoring some credibility to our original assumptions. Most correlations were at the level of .10 or less. However, to test for low predictive power in the controlling variables, we performed a ONEWAY ANOVA and SNK procedure for hypotheses 3 and 5. While the regression analysis was not significant for any differences in nPow between the three schools (hypothesis 3), the above tests were able to suggest a statistical difference between SOS (Subset 1) with AWC and ACSC (Subset 2). These tests did not detect a significant difference between AWC and ACSC. All other comparisons for these two hypotheses paralleled results produced by the regression analysis. Analysis of hypothesis 5 produced no differences between the two approaches.

While all of the inferential tests failed to confirm our hypotheses, the descriptive comparisons indicated general support of the hypotheses (1, 2, 6 and 7) and were in agreement with earlier findings.

In attempting to determine why this study's results differed from those of Harrell and Stahl (1981), we initially

inferred several possible reasons. First, as mentioned in Harrell and Stahl (1981), the Job Choice Exercise was still a novel instrument in testing McClelland's trichotomy of needs. Few studies have used it as a primary instrument. Second, the reliability of the instrument had thus not been exhaustively tested. Third, this study's methodology emphasized regression analysis in comparison to the paired sample and two-sample t-tests used by Harrell and Stahl (1981). As mentioned earlier, this study used regression in an attempt to control for other variables.

These differences, however, did not address underlying similarities and positive trends between the two studies. Harrell and Stahl (1981) used graduate students at the Air Force Institute of Technology. Our study used students at Squadron Officer School. Both groups were very similar in rank (First Lieutenant and Captain), time in service as an Air Force Officer, and age. Harrell and Stahl (1981) concluded that nAch was the statistically significant dominant motive for the graduate students. Our data did not indicate that there was a significant difference, but trends in the raw data supported the conclusions of the previous study. In our study, nAch was the dominant motive among SOS students, although not statistically significant (see Table III).

Similar parallels existed between the two studies in measuring trends for nPow, although the conclusions differed.

The previous study tested nPow as the dominant motive within the management executives and against the other two groups. The management executives were students at AWC—the same school used in our study. Harrell and Stahl (1981) concluded that nPow was the dominant motive within AWC and that AWC had the highest nPow of the three schools. Although our study did not conclude that there was a statistically significant difference, the underlying trends were again similar. The nPow for AWC in our data was the highest within AWC and had the highest beta weight between the three schools (see Table III). Results of the ANOVA and SNK also concluded that AWC was significantly higher than SOS. Not surprisingly, the correlation coefficient between nPow and AWC (.19) was higher than the other two schools. Therefore, based on the above similarities in data trends between the two studies, we concluded that our data further contributed to the reliability of the JCE as a viable instrument.

The above discussion addressed reliability of the instrument and differing methodologies. In each case, differences between the studies were not traced to the instrument itself or the different methodologies in analyzing the results. Therefore, we concluded that the differing conclusions were a function of differences between the two subject groups, and not due to methodology or instrument reliability.

Recommendations for Future Study

This research has served to further validate the JCE as developed by Harrell and Stahl. However, additional validation is necessary to refine and test this new instrument. We recommend additional studies that focus on validation of the JCE. Its use in the past has been significant; its promise for future studies depends on the enthusiasm shared by others in testing and validating the JCE.

APPENDICES

APPENDIX A

JOB CHOICE EXERCISE

AU-SCN-82-07

A JOB CHOICE

DECISION-MAKING EXERCISE

PRIVACY ACT STATEMENT

1. Authority: 10 USC 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.

2. PRINCIPAL PURPOSE(S): This information will be used for Air Force research and development and educational purposes.

3. ROUTINE USES: Information provided by respondents will be treated confidentially and will be used for official research and education purposes.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION: Disclosure of this information is voluntary. The Air Force continues to improve only with your assistance to make additional refinements in management of its resources. Your cooperation in this effort is appreciated.

A JOB CHOICE
DECISION-MAKING EXERCISE

DECISION MAKING EXERCISE

This decision making exercise deals with hypothetical situations. In this way, it simulates the job preference and effort decisions most professional-level individuals encounter at some point in a career. As you complete the exercise, you should project yourself into a hypothetical situation. Assume you are seeking a job and you are in the process of judging a number of jobs available to you which you are qualified to fill. All of these jobs are exactly alike in the usual attributes, such as pay, benefits, etc. These jobs differ only in regards to the information presented to you about three key factors. A sample job is presented below for your advance examination before you begin the exercise.

Please notice you are asked to arrive at two decisions in relation to each of the hypothetical jobs presented to you. The first decision involves judging the attractiveness of the job (DECISION A). The second decision involves judging how much effort you would exert to get the particular job.

JOB X *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is* ..... VERY HIGH (95%)

--*influencing the activities or thoughts of a number of individuals is* ..... VERY LOW (5%)

--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is* ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB X *If you exert a great deal of effort to get this job, the likelihood that you will be successful is* MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

As you arrive at your decisions, the characteristics of the information presented to you about each job should be kept in mind. If an event's likelihood is Very High (95%), then it will occur in about 95 of 100 similar situations. If an event's likelihood is Medium (50%), then it will occur in about 50 of 100 similar situations. If an event's likelihood is Very Low (5%), then it will occur in only about 5 of 100 similar situations.

In each instance, consider the information presented to you and then arrive at your judgment of the attractiveness of that particular job to you. Circle the number under DECISION A which indicates your choice. Remember, there are no "correct" or "incorrect" choices, so follow your own feelings.

After indicating your choice under DECISION A, examine the information presented as FURTHER INFORMATION. Data about the likelihood you will be successful if you exert a great deal of effort to get the particular job is presented here. Circle the number under DECISION B which indicates your choice.

You should now begin to make the actual decisions, starting with Job #1. Be careful not to skip a job; you should make decisions about each of the jobs presented to you. Once again, remember there are no "correct" or "incorrect" decisions in this exercise, so express your true feelings and intentions. You should work briskly without hurrying. Please complete the exercise in a single sitting.

NOTICE: The information you provide will be held in strict confidence. Your privacy will be protected.

JOB #1 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #1 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #2 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #2 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%)

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB # 3 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB # 3 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #4 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB # 4 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #5 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #5 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #6 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #6 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB # 7 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB # 7 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB # 8 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB # 8 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB # 9 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY LOW (5%)
--*influencing the activities or thoughts of a number of individuals is*	VERY HIGH (95%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB # 9 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB # 10 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY HIGH (95%)
--*influencing the activities or thoughts of a number of individuals is*	VERY LOW (5%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB # 10 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #11 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive ... Very Attractive

FURTHER INFORMATION ABOUT JOB #11 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it ... Great effort to get it

JOB #12 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive ... Very Attractive

FURTHER INFORMATION ABOUT JOB #12 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it ... Great effort to get it

JOB #13 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is* ..... VERY LOW (5%)

--*influencing the activities or thoughts of a number of individuals is* ..... VERY LOW (5%)

--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is* ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive ... Very Attractive

FURTHER INFORMATION ABOUT JOB #13 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is* MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it ... Great effort to get it

JOB #14 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is* ..... VERY HIGH (95%)

--*influencing the activities or thoughts of a number of individuals is* ..... VERY HIGH (95%)

--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is* ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive ... Very Attractive

FURTHER INFORMATION ABOUT JOB #14 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is* VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it ... Great effort to get it

JOB #15 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is	VERY LOW (5%)
--influencing the activities or thoughts of a number of individuals is	VERY LOW (5%)
--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is	VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #15 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #16 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is	VERY LOW (5%)
--influencing the activities or thoughts of a number of individuals is	VERY HIGH (95%)
--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is	VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #16 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #17 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #17 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #18 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #18 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #19 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY LOW (5%)
--*influencing the activities or thoughts of a number of individuals is*	VERY HIGH (95%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #19 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB #20 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY HIGH (95%)
--*influencing the activities or thoughts of a number of individuals is*	VERY HIGH (95%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unattractive										Very Attractive

FURTHER INFORMATION ABOUT JOB #20 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0	1	2	3	4	5	6	7	8	9	10
Zero effort to get it										Great effort to get it

JOB # 21 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB # 21 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB # 22 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #22 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #23 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #23 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #24 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #24 *If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).*

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #25 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY LOW (5%)
--*influencing the activities or thoughts of a number of individuals is*	VERY LOW (5%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #25 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY LOW (5%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #26 *In this job, the likelihood that a major portion of your duties will involve*

--*establishing and maintaining friendly relationships with others is*	VERY HIGH (95%)
--*influencing the activities or thoughts of a number of individuals is*	VERY LOW (5%)
--*accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is*	VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #26 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #27 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #27 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #28 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY LOW (5%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #28 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #29 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY LOW (5%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY HIGH (95%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #29 If you exert a great deal of effort to get this job, the likelihood that you will be successful is VERY HIGH (95%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

JOB #30 *In this job, the likelihood that a major portion of your duties will involve*

--establishing and maintaining friendly relationships with others is ..... VERY HIGH (95%)

--influencing the activities or thoughts of a number of individuals is ..... VERY HIGH (95%)

--accomplishing difficult (but feasible) goals and later receiving detailed information about your personal performance is ..... VERY LOW (5%)

DECISION A. With the factors and associated likelihood levels shown above in mind, indicate the attractiveness of this job to you.

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5
Very Unattractive — Very Attractive

FURTHER INFORMATION ABOUT JOB #30 If you exert a great deal of effort to get this job, the likelihood that you will be successful is MEDIUM (50%).

DECISION B. With both the attractiveness and likelihood information presented above in mind, indicate the level of effort you would exert to get this job.

0 1 2 3 4 5 6 7 8 9 10
Zero effort to get it — Great effort to get it

BACKGROUND INFORMATION

Circle the appropriate response for each item below, or fill in the blank.

1. Your grade level is:

   1. O-1
   2. O-2
   3. O-3
   4. O-4
   5. O-5
   6. O-6
   7. O-7

2. Your age is: _____.

3. Your race is:

   1. American Indian or Alaskan Native
   2. Asian or Pacific Islander
   3. Black, not of Hispanic Origin
   4. Hispanic
   5. White, not of Hispanic Origin
   6. Other

4. Your sex is:

   1. Male
   2. Female

5. Your highest educational level was:

   1. Non-high school graduate
   2. High School graduate or GED
   3. Some college work
   4. Bachelor's degree
   5. Some graduate work
   6. Master's degree
   7. Doctoral degree

6. How long have you been in service?

   _____ years _____ months

7. Are you or have you been a supervisor?

   1. Yes
   2. No

8. If you are or have been a supervisor, how long have you been a supervisor?

   _____ years _____ months

9. What is your primary AFSC?

   _____

10. Your birth order is:

    1. Only child
    2. First born of 2 of more children
    3. Second born
    4. Third born
    5. Fourth born
    6. Fifth born
    7. Sixth or later born

APPENDIX B

REGRESSION COMPUTER PROGRAM

REGRESSION COMPUTER PROGRAM
by
Scott W. Berry

```
1 RUN NAME        REGRESSION FOR HYPOS #1, #2, #3, #4, #8
2 VARIABLE LIST   SEX,EDLEVEL,YRSVC,SUPERV,YEARSP,BIRTHOR,SCHOOL,RSQUAR,
3                 NAFF,NPOW,NACH
4 N OF CASES      239
5 INPUT MEDIUM    CARD
6 INPUT FORMAT    FIXED (4X,F1.0,F1.0,F2.0,F1.0,F2.0,5X,F1.0,F1.0,1X,F5.3,
7                 F5.3,F5.3,F5.3)
8 IF              (SEX EQ 1) X3 = 1
9 IF              (BIRTHOR EQ 2) X5 = 1
10 IF              (SUPERV EQ 1)X7 = 1
11 IF              (SCHOOL EQ 1) X1 = 1
12 IF              (SCHOOL EQ 2) X2 = 1
13 COMPUTE         X4 = EDLEVEL
14 COMPUTE         X6 = YRSVC
15 COMPUTE         X8 = YEARSP
16 COMPUTE         Y1 = NPOW
17 COMPUTE         Y2 = NAFF
18 COMPUTE         Y3 = NACH
19 VAR LABELS      X1 AIR WAR COLLEGE/X2 AIR COMMAND AND STAFF COLLEGE/
20                 X3  MALE/
21                 X4  EDUCATIONAL LEVEL/X5  FIRST BORN OF 2 OR MORE CHILDREN/
22                 X6 TIME IN SERVICE/
23                 X7 SUPERVISOR/
24                 X8 TIME AS SUPERVISOR/
25                 Y1 NEED FOR POWER/Y2 NEED FOR AFFILIATION/
26                 Y3 NEED FOR ACHIEVEMENT/
27 COMMENT         THIS REGRESSION SATISFIES HYPOS #1, #2, #3, #4, #8
28 REGRESSION      VARIABLES=Y1,Y2,Y3,X1,X2,X3,X4,X5,X6,X7,X8/
29                 REGRESSION=Y1 (*,.0000000000001,.00000000000001,
30                 .00000000000001) WITH X1 TO X8 (1)/
31                 REGRESSION=Y1 (*,.0000000000001,.000000000000001,
32                 .00000000000001) WITH X3 TO X8 (1)/
33                 REGRESSION=Y1 (*,.0000000000001,.000000000000001,
34                 .00000000000001) WITH X1 TO X6 (1),X8 (1)/
35                 REGRESSION=Y2 (*,.0000000000001,.000000000000001,
36                 .00000000000001) WITH X1 TO X8 (1)/
37                 REGRESSION=Y2 (*,.0000000000001,.000000000000001,
38                 .00000000000001) WITH X3 TO X8 (1)/
39                 REGRESSION=Y1 (*,.0000000000001,.000000000000001,
40                 .00000000000001) WITH X1 TO X4 (1),X6 TO X8 (1)/
41 STATISTICS      1,2,3
42 READ INPUT DATA
43 FINISH
EOT..
```

SELECTED BIBLIOGRAPHY

A. REFERENCES CITED

Anastasi, A. Psychological testing. 4th ed. New York: MacMillan Publishing Co., Inc. 1976.

Ashton, R. H. An experimental study of internal control judgments. Journal of Accounting Research, 1974, 12, 143-158.

Atkinson, J. W. Motives in fantasy, action, and society. New York: Van Nostrand, 1958.

Beach, L. R. Multiple regression as a model for human information utilization. Organizational Behavior and Human Performance, 1967, 2, 276-289.

Brown, T. R. A comparison of judgmental policy equations obtained from human judges under natural and contrived conditions. Mathematical Biosciences, 1972, 15, 205-230.

Brunswik, E. The conceptual framework of psychology. Chicago: The University of Chicago Press, 1952.

Christal, R. E. Selecting a harem and other applications of the policy capturing model. The Journal of Experimental Education, 1968, 36, 35-41.

Darlington, R. B. Multiple regression in psychological research and practice. Psychological Bulletin, 1968, 69(3), 161-182.

Dawes, R. M. The robust beauty of improper linear models in decision making. American Psychologist, 1979, 34(7), 571-582.

Dawes, R. M., & Corrigan, B. Linear models in decision making. Psychological Bulletin, 1974, 81(2), 95-106.

DeLeo, P. J., & Pritchard, R. D. An examination of some methodological problems in testing expectancy-valence models with survey techniques. Organizational Behavior and Human Performance, 1974, 2, 143-148.

Donley, R. E., & Winter, D. G. Measuring the motives of public officials at a distance: An exploratory study of American presidents. Behavioral Science, 1970, 15(3), 227-236.

Durand, D. E. Relation of achievement and power motives to performance among black businessmen. Psychological Reports, 1975, 37(1), 11-14.

Fineman, S. The achievement motive construct and its measurement: Where are we now? British Journal of Psychology, 1977, 68(1), 1-22.

Friis, R. H., & Knox, A. B. A validity study of scales to measure need achievement, need affiliation, impulsiveness, and intellectuality. Education & Psychological Measurement, 1972, 32(1), 147-154.

Goldberg, L. H. Simple models or simple processes? Some research on clinical judgments. American Psychologist, 1968, 23, 483-496.

Gooch, L. L. Policy capturing with local models: The application of the AID technique in modeling judgment. Unpublished doctoral dissertation, University of Texas, Austin, 1972.

Hammond, K. R., Rohrbaugh, J., Mumpower, J., & Adelman, L. Social judgment theory: Applications in policy formation. In M. F. Kaplan & S. Schwartz (Eds.), Human judgment and decision processes in applied settings. New York: Academic Press, 1977.

Harrell, A. M., & Stahl, M. J. A behavioral decision theory approach for measuring McClelland's trichotomy of needs. Journal of Applied Psychology, 1981, 66(2), 242-247.

Helmreich, R. L., Beane, W., Lucker, G. W., & Spence, J. T. Achievement motivation and scientific attainment. Personality & Social Psychology Bulletin, 1978, 4(2), 222-226.

Hines, G. H. Achievement motivation, occupations, and labor turnover in New Zealand. Journal of Applied Psychology, 1973, 58(3), 313-317.

Hoffman, P. J. The paramorphic representation of clinical judgment. Psychological Bulletin, 1960, 57, 116-131.

Jones, K. M., Mannis, L. S., Martin, L. R., Summers, J. L., & Wagner, G. R. Judgment modeling for effective policy and decision making. AFOSR-TR-75-180. Brooks AFB Texas: Air Force Office of Scientific Research, 1975, AD A033186.

Kaplan, M. F., & Schwartz, S. (Eds.). Human judgment and decision processes. New York: Academic Press, 1975.

Kerem, G., & Newman, J. R. Additional considerations with regard to multiple regression and equal weighting. Organizational Behavior and Human Performance, 1978, 22, 143-164.

Laughlin, J. E. Comment on "Estimating coefficients in linear models: It don't make no nevermind." Psychological Bulletin, 1978, 85(2), 247-253.

Layman, W. A., & Saueracker, A. Birthorder and sibship size of medical school applicants. Social Psychiatry, 1978, 13(2), 117-123.

Madden, J. M. Using policy capturing to measure attitudes in organizational diagnosis. Personnel Psychology, 1981, 34(2), 342-348.

McClelland, D. C. Personality. New York: Holt, Rinehart, & Winston, 1951.

McClelland, D. C., (Ed.). Studies in motivation. New York: Appleton-Century-Crofts, 1955.

McClelland, D. C. The role of educational technology in developing achievement motivation. Educational Technology, 1969, 9(10), 7-16.

McClelland, D. C. The two faces of power. In D. A. Kolb, I. M. Rubin, and J. M. McIntyre, (Eds.), Organizational psychology: A book of readings. 2d ed. Englewood Cliffs NJ: Prentice-Hall, 1971.

McClelland, D. C. That urge to achieve. In D. A. Kolb, I. M. Rubin, and J. M. McIntyre, (Eds.), Organizational psychology: A book of readings. 2d ed. Englewood Cliffs NJ: Prentice-Hall, 1971.

McClelland, D. C. What is the effect of achievement motivation training in the schools. Teachers College Record, 1972, 74(2), 129-145.

McClelland, D. C. Power: The inner experience. New York: Irvington, 1975.

McClelland, D. C. Inhibited power motivation and high blood pressure in men. Journal of Abnormal Psychology, 1979, 88(2), 182-190.

McClelland, D. C., & Winter, D. G. Motivating economic achievement. New York: Free Press, 1969.

McClelland, D. C., & Watson, R. L. Power motivation and risk-taking behavior. Journal of Personality, 1973, 41(1), 121-139.

McClelland, D. C., & Burnham, D. H. Good guys make bum bosses. Psychology Today, 1975, 9(7), 69-70.

McClelland, D. C., & Burnham, D. H. Power is the great motivator. In R. C. Huseman & A. B. Carroll, (Eds.), Readings in organizational behavior: Dimensions of management actions. Boston: Allyn & Bacon, Inc., 1979.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. The achievement motive. New York: Irvington, 1976.

McClelland, D. C., Constantian, C. A., Regalado, D., & Stone, C. Making it to maturity. Psychology Today, 12 June 1978, 42-49.

McClelland, D. C., & Jemmott, J. B. Power motivation, stress, and physical illness. Journal of Human Stress, 1980, 6(4), 6-15.

Mitchell, T. R., & Beach, L. R. Expectancy theory, decision theory, and occupational preference and choice. In M. F. Kaplan & S. Schwartz, (Eds.), Human judgment and decision processes in applied settings. New York: Academic Press, 1977.

Morris, J. H., & Snyder, R. A. A second look at need for achievement and need for autonomy as moderators of role perception-outcome relationships. Journal of Applied Psychology, 1979, 64(2), 173-178.

Murray, H. A. Explorations in personality. New York: Oxford University Press, 1938.

Neld, J. B., Ward, D. E., & Edgar, T. Two interpretations of birth order position. Individual Psychologist, 1977, 14(2), 46-53.

Rotondi, T., Jr. Identification, personality needs, and managerial position. Human Relations, 1976, 29(6), 507-515.

Singh, S. Achievement motivation and entrepreneurial success. Journal of Research in Personality, 1978, 12(4), 500-503.

Slovic, P. Analyzing the expert judge: A descriptive study of a stockbroker's decision processes. Journal of Applied Psychology, 1969, 55, 255-263.

Slovic, P., & Lichtenstein, S. Comparison of bayesian and regression approaches to the study of information processing in judgment. Organizational Behavior and Human Performance, 1971, 6, 649-744.

Slovic, P., Fischhoff, B., & Lichtenstein, S. Behavioral decision theory. Annual Review of Psychology, 1977, 28, 1-39.

Smith, T. A flow chart for policy capturing. Report No. 147, Institute for Behavioral Science, University of Colorado, 1972.

Stahl, M. J., & Harrell, A. M. Modeling effort decisions with behavioral decision theory: Toward an individual differences model of expectancy theory. Organizational Behavior and Human Performance, 1981, 27, 303-325.

Steers, R. M., & Braunstein, D. N. A behaviorally-based measure of manifest needs in work settings. Journal of Vocational Behavior, 1976, 9(2), 251-266.

Steers, R. M., & Spencer, D. G. The role of achievement motivation in job design. Journal of Applied Psychology, 1977, 62(4), 472-479.

Stone, E. F., Mowday, R. T., & Porter, L. W. Higher order need strengths as moderators of the job scope-job satisfaction relationship. Journal of Applied Psychology, 1977, 62(4), 466-471.

Varga, K. Nachievement, npower, and effectiveness of research and development. Human Relations, 1975, 28(6), 571-590.

Vroom, V. H. Work and motivation. New York: Wiley, 1964.

Zedeck, S., & Kafry, D. Capturing rater policies for processing evaluation data. Organizational Behavior and Human Performance, 1977, 18, 269-294.

B. RELATED SOURCES

American Psychological Association. Publication manual. Washington, DC: Amer. Psych. Assoc., 1974.

Bottenberg, R. A., & Ward, J. H., Jr. Applied multiple linear regression. Technical Documentary Report PRL-TDR-63-6, 6570th Personnel Research Laboratory, Aerospace Division, AFSC, Lackland AFB TX, 1963.

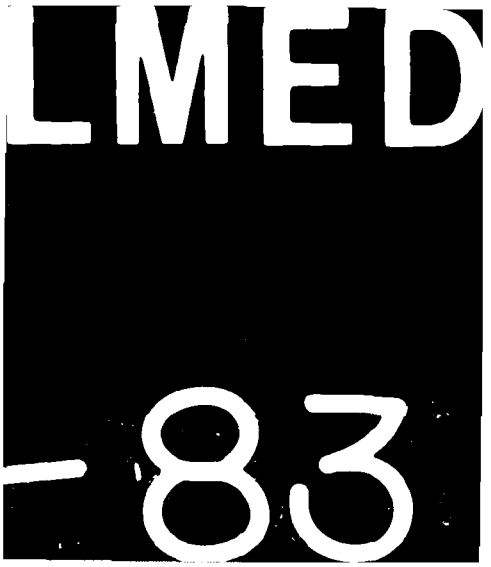
Department of Communication and Humanities, School of Systems and Logistics, Air Force Institute of Technology (AU). Format and style guidelines for logistics research reports and theses. Wright-Patterson AFB OH, 1980.

Guilford, J. P. Fundamental statistics in psychology and education. 4th ed. New York: McGraw-Hill Book Company, 1965.

Hull, C. H., & Nie, N. H. SPSS update 7-9. New York: McGraw-Hill Book Co., 1981.

McClave, J. T., & Benson, P. G. Statistics for business and economics. Revised Ed. San Francisco: Dellen Publishing Co., 1979.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. Statistical package for the social sciences. 2d ed. New York: McGraw-Hill Book Co., 1975.


LMED
-83